Occupational and Physical Therapy at WRAMC: Treating Those Who Sustain Trauma From Operation Iraqi and Enduring Freedom

Barbara A. Springer, PT, Ph.D., OCS, SCS
LTC, SP

William J. Howard III, MSS, OTR/L, CHT
COL, SP

Walter Reed Army Medical Center (WRAMC), an echelon V facility, has been the primary hub in the United States in receiving Army battle casualties from Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF). Walter Reed has treated approximately 2700 patients from OIF alone since the war began, 400 of which were inpatients. The care of service men and women from injury to disposition is truly a joint service and specialty effort including the efforts of both Occupational and Physical Therapy. The injured service member is initially treated in the field and subsequently at a variety of far forward medical care facilities. Patients are then usually transferred to Landstuhl Regional Medical Center (LRMC) in Germany, an echelon IV facility, for further stabilization prior to transfer back to the United States versus returning to duty (RTD). The WRAMC Department of Orthopaedics and Rehabilitation continues to be integrally involved in receiving, caring for and managing battle casualties. The following is a synopsis of the structure that was established, modified and integrated in the care of a continuous flow of large numbers of the contaminated, multi-extremity injured patient that required multiple surgical procedures followed by extensive rehabilitation of which Occupational and Physical Therapy are an integral and valuable team members.

As part of a patient-centered team, Occupational Therapy (OT) and Physical Therapy (PT) staff members work closely together and are responsible for assisting Operation Iraqi Freedom and Operation Enduring Freedom (OIF/OEF) soldiers, sailors, airmen, marines, coastguardsmen, and their families in rehabilitation for return to the highest level of function possible. Occupational therapists (OTRs), physical therapists (PTs), certified occupational therapy assistants (COTAs, technical level personnel), physical therapy assistants (PTAs), and physical therapy technicians work with a host of other professionals including but not limited to physiatrists, orthopedic and general surgeons, neurosurgeons, psychiatrists, social workers, dietitians, speech/language therapists, nurse case managers, prosthetics, orthotists and nurses to provide the highest quality of care throughout the treatment continuum.

Specifically, occupational therapy (OT) addresses deficits in Activities of Daily Living (ADL), upper extremity motor performance deficits secondary to injury or disease and occupational, or role performance deficits due to mental/behavioral health deficits.

Physical Therapy concentrates on deficits in bed mobility, balance, transfers, strength, motion, gait, conditioning, trunk stability, and general and athletic performance.

OIF/OEF patients are referred to inpatient or outpatient physical therapy (PT) primarily from physiatrists and orthopaedists.

During the first month of the war, the PT on call was present at the triage center with orthopaedic, general, and vascular surgeons to identify patients with physical therapy needs, assist with dressing changes, and communicate directly with the surgeons about weight-bearing status, restrictions, and precautions. This allowed for thorough consultations, enhanced communication, and inpatient physical therapy staffing planning. However, due to the number and frequency of patients from overseas, and the hours of arrival, the decision was made to have on call physicians triage and make recommendations and referrals within 24 hours.

Amputees make up a large part of the OIF/OEF patient population at WRAMC and are evaluated and treated by a multidisciplinary amputee center team in which PT and OT play a significant role. Other team members include, but are not limited to physiatrists, physician assistants, nurses, a psychiatrist, PTs, a PTA, OTRs, COTAs, an orthopaedist, prosthetics, a social worker, a dietician, and a speech therapist. The team meets twice weekly to evaluate each amputee patient during a case review. Each patient is evaluated individually for both short and long-term needs in both the physiological and psychological areas.

Inpatient Occupational Therapy

OT receives consults on OIF/OEF patients from surgical services, primarily Orthopedics and General Surgery. These consults usually are received within 24 hours of the patient being admitted to Walter Reed Army Medical Center (WRAMC). There is usually a warning or anticipatory notification from the Department Chief of Orthopedics and Rehab on patients coming through the air evacuation system, particularly amputees, which provides some ability to project workload in the amputee care arena. Injuries of patients seen from the OIF/OEF theaters include amputations, fractures (both upper and lower extremity), soft tissues injuries, peripheral nerve injuries, spinal cord injuries and closed head injuries. Ophthalmologic injuries of one or both eyes are also a significant co-morbidity. A significant number of patients' wounds are left open, increasing the complexity of care for these soldiers.

Once consults are received, patients are evaluated within 24 hours. The OT amputee care team consists of two OTRs and two COTAs and they evaluate and treat patients with upper and lower limb amputations. The team is augmented as needed with additional staff, depending on the workload. The inpatient orthopedic and rehabilitation sections see patients with other traumatic injuries without amputations. Evaluation and treatments for physically injured patients are conducted both on the wards and in the OT Clinic. Patients evacuated from the theater of operations with mental/behavioral health deficits are also seen on the ward when in an inpatient status and in the OT Clinic as outpatients.

Amputees require specialized care. This specialized care involves wound management, pre-prosthetic training, and prosthetic training (basic and advanced). Factors involving residual limb care in terms of strengthening, regaining range of motion and activities of daily living occur within each phase. Typically, inpatient amputee patients are in Phase I pre-prosthetic care and training. The Occupational Therapy

Amputee Section coordinates weekly outings to facilitate community integration. These outings include trips to local shopping malls, sporting activities such as bowling, and tours of local military relevant places such as the Pentagon and other national treasures. Several team members including Physical Therapy and Nursing participate in the outings. Particular attention is paid to the psychological aspects of adjustment to the soldier's amputation as a part of individual interaction and treatment. All OIF/OEF soldiers are provided several treatment and support groups as part of their treatment plan.

Those OIF/OEF patients who sustained significant trauma not resulting in amputations are seen for the remediation of their deficits using standard OT methods and protocols addressing strengthening, coordination, range of motion and endurance. Initial evaluation and treatment is focused on assisting patients in ADL independence of personal hygiene, feeding and dressing, as well as the remediation of whatever musculoskeletal system has been affected. Documentation is done electronically on the Computer Information System (CIS) for all inpatients at WRAMC.

OT is part of the inter/multidisciplinary team, which sees those OIF/OEF patients who sustained mental/behavioral health deficits. Patients requiring inpatient care are seen in a milieu model of treatment. Outpatient OIF/OEF patients are seen as part of the Partial Hospitalization Program (PHP). This is a specialized outpatient program, which is part of Psychiatry's Continuity Services. Occupational Therapy has a life skill group as part of the PHP.

Inpatient Physical Therapy

Inpatient consults for PT are typically received within 24 hours from time of admission or when the patient is stable enough to receive PT. PTs provide evaluations and treatments for these OIF/OEF patients on any of the wards, to include the intensive care units (ICUs). Most injuries incurred by these patients are caused by landmines, improvised explosive devices (IEDs), rocket propelled grenades (RPGs), gunshot wounds (GSWs), and motor vehicle accidents (MVAs). Examples of common conditions evaluated and treated by PT staff include: multiple trauma, soft tissue injuries, burns, skin grafts and flaps, fractures, amputations, traumatic brain injuries, hemiplegia, spinal cord injury, and vestibular dysfunction. Unfortunately, many patients do not sustain just one injured limb, but rather suffer multiple injuries and conditions. For example, challenging patients include those who undergo double or triple amputations, are blinded, and suffer traumatic brain injury. PT treatments include bed mobility, transfers, gait training, don and doffing of prosthesis, mat exercises, residual limb desensitization, strengthening, stretching and range of motion, conditioning, aquatic therapy, balance training, neuro rehabilitation, and patient and family education. Inpatients are treated twice daily where appropriate on weekdays and once a day on weekends. There is a pool of contract weekend PTs, and PTAs and technicians. Two of each are scheduled to work every Saturday and Sunday. If there is a need for more than four staff members on the weekends, the military on-call PT and/or technician come in to assist. In order to provide continuity of care for our amputees throughout the entire week, rotating schedules were created for our full time amputee therapists. Our PT amputee section consists of three PTs and one PTA who evaluate and treat all the upper and lower extremity amputees.

Inpatient PTs work closely with social workers and nurse case managers to coordinate further care, to include evaluating rehabilitation and equipment needs. Occasionally an OIF/OEF patient needs to go to a specialized Veteran Affairs (VA) Rehabilitation hospital for severe traumatic brain or spinal cord injury rehabilitation. Other times they are discharged and stay in the local guesthouse awaiting further surgery and/or wound checks. Inpatient PTs also help coordinate outpatient PT--whether it is at WRAMC, at the patients' mobilization site, or home. Sometimes patients go home on convalescent leave, then return for further work-up and/or rehabilitation.

Outpatient Occupational Therapy

Most OIF/OEF patients seen for outpatient care have been inpatients and are seen within 48 hours of discharge from the hospital. Those patients who air evacuated to WRAMC as an outpatient and in need of OT are seen within 72 hours and usually in less time once a referral has been received. The evaluation and treatment process is similar to inpatients. The evaluation and treatment process is documented and placed in the patient's outpatient record.

Outpatient Physical Therapy

Outpatient physical therapy is provided within 72 hours (and typically less) of receiving a consult from health care providers such physiatrists or orthopaedists. There are three mornings that are dedicated to OIF/OEF patients (and all active duty) each week. To further meet their needs, there are also 72 hour slots available. After these patients are evaluated, PTs determine their rehabilitation needs and may refer them to other specialty clinics such as neurology or orthopaedics. They write a detailed treatment plan for PT at WRAMC (if they are staying for any other health reasons), or refer them to other military or civilian PT clinics, depending on their status. There is a dedicated nurse case manager for these OIF/OEF patients to help coordinate their medical needs at their mobilization sites, or at home if they go on convalescent leave.

Lessons Learned (Occupational Therapy)

1. The number of patients from the Iraqi theater increased significantly in July with more attacks on Coalition Forces. The following is a rough estimate of the number of OT clinic visits for amputees and OIF/OEF patients:

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
AMPUTEES	62	71	88	125	198	171	269	220
TOTAL OIF/OEF	175	226	277	289	308	382	424	395

The patient accounting system for these patients was not as accurate as it could be. More accurate accounting can be accomplished with a more labor intense effort.

The staffing in April and May was clearly inadequate to handle the volume and intensity of patient care. The complex nature of the war/battlefield-injured patient requires a higher level of individual attention to each patient.

Solution:

The Department of Orthopedics and Rehabilitation was provided contract authority to hire three additional staff members. Two were dedicated specifically to amputee care. The other position was placed in the general inpatient rehabilitation section. This allowed for the development of a team from available therapists dedicated specifically to amputees. The additional resources allowed for weekend coverage, without burning out the staff. The OT Service received two reserve personnel in April 2003, one OTA from the 4219th USA Hospital and a 91W who is slated to become an OTA from the 2290th General Hospital. This was a tremendous acquisition, which has assisted in the complex care of the OIF/OEF population.

2. The initial process in OT for taking care of the OIF/OEF patients had several inefficiencies. The amputee patients were evaluated and treated by multiple staff members lacking some consistency.

Solution:

A dedicated OT Amputee Section was created in late August 2003 to work with this population of patients. This centralized the care to a group of therapists who provide consistent evaluation and treatment to all amputees. This team consists of two OTRs and two COTAs. There is one military OTR and one military OTA, who will rotate with other military staff, to allow cross training of all OT staff over time. This team process allowed better synergy with the larger Amputee Care Center working closely with Prosthetics, Physical Therapy, and the physician staff. A protocol/treatment pathway was developed to provide an objective reproducible method for amputee care from pre-prosthetic training to discharge with all upper extremity and lower extremity prosthetics. Close coordination with the contract personnel from the Prosthetics lab has resulted in a solid team approach in the upper extremity prosthetics fitting and training of soldiers and in the education of their family members.

3. From the groups of patients from the Afghanistan Theater in the fall of 2001 and through 2002, it was clear the type of rehabilitation of these patients would require a more comprehensive ADL area.

Solution:

In the spring of 2003, part of the OT Clinic was renovated to accommodate an apartment type Activity of Daily Living area, which was completed in June 2003. This area is heavily used, providing the OIF/OEF patients a place to practice skills necessary to return to independent functioning. The apartment allows patients to become independent in personal hygiene and bathing, transfers, cooking, household cleaning and computer use.

4. The media, although extremely positive in their desire to cover important stories and our equal desire to have them document these patients recovery, sometimes came at inopportune times. This sometimes affected the quality of the therapy time.

Solution:

The Public Affairs Office (PAO) staff has done a great job including the OT Service in scheduling members of the media within the clinic. This has allowed scheduling to improve. Media visits are much better anticipated and the information provided to them is better organized.

Lessons Learned (PT):

1. The number of multiple traumas, blast injuries, gunshot wounds, amputations, and burns incurred by OIF/OEF patients has been numerous and ongoing. The PT Service incurred the following number of OIF/OEF amputee patient visits/month (the number of all amputee visits other than those from OIF/OEF is larger), and number of OEF/OIF visits/month:

	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV
AMPUTEES	80	70	115	137	202	202	346	163
OEF/OIF	772	550	569	593	768	768	768	726

This number is conservative, because the data collection process for this population was novel and may not have accurately captured all the visits. These visits are not the typical ankle pain or low back strain patients normally evaluated and treated in outpatient PT. OIF/OEF patients have a much higher acuity and require many more resources such as increased staff and time. For example, there have been a number of double and triple amputees, blind amputees with multiple limbs involved, and many of the injured patients have traumatic brain injury and/or open wounds and fractures. This has caused the PT Service to shift focus entirely, to provide the necessary care to the OIF/OEF and other inpatients. The continued increase in patients due to OIF/OEF has made it necessary for the PT Service to go to a prime-only status for a period of time, which reduced outpatient visits by approximately 45%. This resulted in decrements in PT specialty services such as vestibular rehabilitation, total joint evaluation and treatments, and Chronic Obstructive Pulmonary Disease exercise classes.

Solutions:

Reservists should be called up early and dedicated to services such as PT and OT to help ease the burden on staff during this time of increased casualties. Even though PT Service was not able to have a long term reservist called to active duty dedicated to work in PT during this time, PT did receive a TPU soldier attached to the 339th CSH in Harrisburg, PA for 1 month. As a reservist, he serves as the Clinical Operations Coordinator, in the Office of the Command Surgeon in 99th RSC. Additionally, WRAMC command provided funding to hire three additional contract PTs and one physical therapist assistant (PTA) to continue providing quality care for all. The Amputee

Section staff increased in size from 1 PT and 1 PTA to three PTs and 1 PTA. Another solution was to send patients over 65 years old, such as many of the diabetic amputees, to civilian facilities where they can use their Medicare benefits. Additionally, civilian security personnel were hired to guard the WRAMC gates freeing our enlisted staff to concentrate on providing patient care. They are still pulled from our clinic for multiple taskings, but not for the month-long gate guard duty.

2. There is a greater need for space in both the 3rd and 5th floor PT clinics due to the higher need for patient equipment such as inpatient beds, geri chairs, wheelchairs, and prosthetics. Additionally, space is required to provide safe functional training, especially for the young traumatic amputee population. Functional training includes balance training, functional drills, hopping, running, climbing, and ambulating on uneven terrain. Currently, these patients can be progressed to high levels of function, to include athletic competition and military duties; however, adequate space will provide better rehabilitation.

Solutions:

The temporary solution has been to take some of the patients outside (when the weather cooperates) or to the gym on the WRAMC campus. A long-term solution is to build a dedicated clinic space for the amputee population. In 2002, Congress provided funding to establish an amputee care program for these young, healthy, highly functional individuals who sustain traumatic amputations. Plans are in place to build the dedicated clinic space that can be shared by all the team members involved in amputee care.

3. There has been some difficulty tracking OIF/OEF outpatients. No particular caseworker was accountable for patients who stay at the local guest house. If they do not show up for scheduled PT treatments, there was no one to contact. In addition, PT staff and the patients would like early and accurate guidance on how to effectively manage OIF/OEF patients, and to determine the length of stay, location of further evaluations and/or surgeries, follow-on outpatient PT, and eligibility issues.

Solutions:

A nurse case manager has been coordinating care for the OIF/OEF patients and answering these questions. Additionally, a nurse case manager was hired specifically for the amputee patient management.

4. The media and visiting VIPs have a positive effect on the casualties. It is very important to the patients. However, occasionally it is excessive and may interfere with getting patients to the PT clinic for treatment.

Solution:

VIPs and the media should certainly be allowed to visit, and there has been close coordination with the public affairs office and PT service. Another suggestion is to have most of the VIPs visit during evening visiting hours (or at least after 1500).

5. Some military patients are being brought back from Iraq because of pre-existing conditions (such as hammer toes, chronic knee, or chronic back pain). PT resources are used to evaluate and treat these patients.

Solution:

Health care professionals at the medical evaluation sites should closely screen those who are being called up for active duty to make sure they can do their mission before they are deployed.

On a positive note, PT and OT have been well received and respected by patients and co-workers alike during this very busy time. The PT and OT staff members have kept a positive attitude and genuinely feel like they are appreciated and well respected.

Conclusions

The care of the OIF/OEF patients is a high honor. The nature of battlefield injuries requires more complex and time intense evaluations and treatments. It also requires a strong multi- and interdisciplinary team of dedicated professionals to address all aspects of the military member injured in the defense of our country. The amount of effort necessary from the numerous professionals involved in the rehabilitation of these patients cannot be measured in time or money. The true measurement is seen in the dedication and caring of a truly world class military medical team, from the battlefield back to the medical center. Physical and Occupational Therapists, part of the team of Soldiers First…Professionals Always.